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SUBJECT The Soviets and the U.S. High Technology

ROBERT MACNEIL: Years ago, Lenin put it this way: "The capitalistic economy plants the seeds of its own destruction, in that it diffuses technology and industry, thereby undermining its own position." Today, Lenin's heirs are actively stealing American technology, and the United States Government is trying to stop them.

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MACNEIL: When President Reagan banned high technology sales to the Soviet Union last week, he was doing more than punishing Moscow for Poland. It was a further move to stop what the Administration believes is a leakage dangerous to the national security. By legal means, espionage and theft, Communist countries have been steadily acquiring the latest electronic technology. The government is trying to tighten up security at electronic plants in California, where thefts of computer chips have reached what some call epidemic proportions.

Some of the microprocessor chips have been traced to East Bloc nations, which could use them to upgrade both civilian computers and military hardware.

More controversially, the Administration is trying to keep Communist scientists away from the latest technological advances by refusing them access to scientific meetings and restricting their activities at universities. Those efforts have raised a storm of protest from academics, who claim they not only violate academic freedom, but will slow down U.S. research.

Tonight, can an open society stop the Soviets from acquiring its technology, and how important is it to do so, anyway?

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JIM LEHRER: Robin, there are two major nests of Soviet Bloc spies in the United States. Nest number one, obviously, is here in Washington, where KGB agents work under diplomatic cover as everything from chauffeurs to high-level diplomats at the Soviet and Eastern European embassies. Their job is to gather information on the U.S. Government, using both overt and covert means.

The second big nest, not so obviously, is in the San Francisco region of Northern California. They're there because of the nearby area known as Silicon Valley, a 30-mile stretch from Menlo Park to San Jose where more than 1500 high technology companies are located, companies that use a lot of silicon making microcomputer chips. Thus the name Silicon Valley. But more importantly, companies working on technological secrets the Soviet Union wants. Thus, according to U.S. officials quoted in a recent Newsweek magazine, there are some 100 Soviet agents, many of them the cream of the KGB corps and trained in technology and engineering, stationed at the Soviet consulate in San Francisco. Their job is to acquire those technological secrets for the Soviet Union; here again, by both overt and covert means.

There aren't many people around who know very much about how the KGB goes about its business, and even fewer who can talk publicly. One of those few is Harry Rositzke, a CIA specialist on the KGB for 25 years, now retired, the author of a recent book on the subject, "The KGB: The Eyes of Russia."

First, on the list of KGB priorities in this country, how important is the gathering of high technology.

HARRY ROSITZKE: You could probably safely say that 80 to 85 percent of the KGB work, not only in Washington and San Francisco, but in New York, is concentrated on one or another form of, let's call it, industrial espionage. This could be both civilian and military technology.

LEHRER: What kinds of things, in general terms, are they looking for?

ROSITZKE: If you look at the last 30 years, they cover almost every aspect of American industrial, technical and scientific work, with specific focus on those parts of our knowledge which they lack. There is in Moscow a scientific and technical directorate inside the KGB that's almost a human data bank. They know everything about every industrial process that is known there, and know what they need to know. In other words, they're the people who direct the KGB people abroad in terms of what kind of man to look for, what kind of information to get.

LEHRER: They send out a shopping list, you mean, a regular shopping list?

ROSITZKE: It's partly that, but it's also a central point. If you're up in New York or in San Francisco and meet a man of some interest and get on a personal level with him, you get ahold of Moscow and say, "What do you want from this fellow?" In other words, you can't have 150 top-level Soviet scientific experts sitting around the United States. So you have a great many people with a scientific and engineering background who then use this data bank back in Moscow to fill in the holes in Soviet knowledge.

LEHRER: What kinds of techniques does the KGB use to gather this information? You mentioned just a moment ago cozying up to somebody on a personal level. Is that how they do it, or what else?

ROSITZKE: The first stage to recruit an agent, of course, is get to know him, to see whether or not he's susceptible. They can get at the information they want through a defense worker, through a laboratory technician, through a corporate junior executive. And in all the cases I know of -- and this goes on in Germany and abroad, as well as here -- it's usually strictly for money. And somewhere along the line, if they find the right people, they will be able to get them to bring out, usually on microfilm, whatever blueprints, whatever documents they want. And, of course, in some cases, like the silicon business, they'd love to have some samples.

LEHRER: Well, a lot of this information is just already available, is it not? The kind of information -- I mean just in the open market.

ROSITZKE: I suppose someone has said 98 percent of everything we know is available either in terms of trade fairs, aviation journals, etcetera. But it's that last two, three, four percent the KGB concentrates on.

They do collect everything they can, because they're knowledgeable. But where they really carry out their main task is to find the man who has access to the data that's denied them.

LEHRER: Is it possible to judge the effectiveness of the KGB operation in acquiring this kind of information, that final two percent?

ROSITZKE: I suppose what you'd have to say is that after they've been at this all these years and they still have most of their people working at it, they certainly are earning their salaries.

Now, to decide how much this information back in Moscow is worth, let us say, to the Soviet technicians, scientists, etcetera, that's a pretty difficult one. Because one contrast to

be made: when they buy a piece of technology, like a full plant, Fiat plant, or a German-French truck factory, there it is and it works. But all these pieces of information that come in there, that go into their informational computers; but when they actually have an effect upon the production process in the Soviet Union, that would be a question mark.

So we're not talking about an immediate effect of a series of small reports coming from, let us say, a dozen American scientists.

LEHRER: Well, what I mean was, have they been effective getting the information? How they use it, I understand what you're saying. That's another...

ROSITZKE: I don't think there's any question about it.

LEHRER: It's working, huh?

ROSITZKE: Well, all the way from Eastman Kodak in the '30s, when they stoke the color process, to today, when they're in some of our space centers, when they're in a great many of our defense plants, and when they are, as you say, really deep into Silicon Valley.

LEHRER: Thank you.

MACNEIL: Now the view of a man with experience in manufacturing high technology, and who also deals with the issue of restricting its export. He is Harry Sello, Executive Vice President of Stanford Scientific Incorporated, a firm which designs computer circuits and consumer products. He's also Chairman of the International Committee of the American Electronics Association. Its members include many firms in Silicon Valley. And Dr. Sello's committee deals with restrictions on exporting high technology. He's with us tonight in the studios of public station KQED, San Francisco.

Dr. Seller -- Sello, in your firm, are you conscious of having had the attention of any of these espionage activities?

HARRY SELLO: Well, I'm not so conscious of these activities in the particular firm I'm with now, because I've only been there rather recently, and it is a small firm. But because of the two decades of work that I've spent in Silicon Valley, and many of them with a well-known firm there, Fairchild Camera and Instrument, I am very conscious of this kind of problem, as are many of my colleagues and many of our associates. We are aware of this. Yes.

MACNEIL: Is the risk of it or the extent of it being exaggerated?

SELLO: That's a subject I find very hard to answer. The difficulty with trying to keep a secret is that when you have a secret, it's yours. But when you don't have it, it's all gone. So all you need to do is lose one.

MACNEIL: I see.

SELLO: I just can't assess the degree to which this has been lost.

You see, we're a very highly proprietary bunch out in Silicon Valley. We're very competitive. We like to think...

MACNEIL: You're trying to keep your secrets from each other, as well as from...

SELLO: Yes, sir. And some of our competitors are right next door or across the street. So we think we're well versed in the idea of keeping secrets. However, one must exercise vigilance at all times.

So, to answer your question, I don't really -- I can't really evaluate just how much has gone out.

MACNEIL: Uh-huh.

Turning to the question of restricting exports of high technology, particularly to the Communist world. Are you in favor of such restrictions?

SELLO: Yes, I am, provided these restrictions are very carefully defined and understood by those who have to use them; and, even more importantly, used uniformly by all who have those problems. And by that I mean by us in the United States and by our equally well-versed allies and our associate friends abroad.

MACNEIL: What happens if the restrictions are not too strictly defined, or are too broadly defined?

SELLO: Well, we in high technology have lived for many years in an area where our Export Control Act applies. We're well aware of restrictions. We work with them. We do our usual things, apply for licenses, as we need to.

Well, while many of these things are well defined, it's a long and laborious procedure, for example, to do this. So you have to judge, is it worthwhile going through such a procedure?

MACNEIL: Isn't it the case that many of these -- this high technology has dual applications, some of them very innocent, like in electronic games, and some quite highly sensitive and potentially having military significance?

SELLO: A very telling point, Mr. MacNeil, one that's been giving us fits in industry for a long time -- a long time in our industry could mean even just the last two to three years, or five or so -- and it presents a problem to us: namely, the fact that the same kind of circuits can go into a toy as can go into some sort of a military-oriented application, a large computer, for example.

But that doesn't mean that we can't define it. It means it must be done, and it can be done, but carefully.

MACNEIL: Can you stop KGB agents from sending Atari games back to their headquarters in Moscow? Or is that too silly?

SELLO: I don't see how that particular restriction can be applied.

MACNEIL: In some games, like the ones that have become terribly popular just this season, for instance, is some of the technology in those games similar to the technology you're talking about, in terms of the microcircuits and so on?

SELLO: Yes, it is. But you must remember that technology is a thing that's embodied, I think the right term is, in the silicon chip itself. So while you can get a fairly good idea -- if you're knowledgeable, you can get a fairly good idea of how the thing is put together, you have to really work at it in order to pull the technology out from the chip.

MACNEIL: Do you think, finally, that it is realistic to think that we can actually restrict access to this kind of stuff in an open society?

SELLO: Oh, that's a very tough question. If you're talking about KGB access, if that's what we're talking about -- or let's talk about the illegal access -- even though we think we all try our damndest to obey the law, there are always people who are ready to circumvent, and for a price, as Mr. Rositzke mentioned. So that the threat of deviation or stealing or piracy is always there.

MACNEIL: Well, thank you.

LEHRER: The Reagan Administration, through the Commerce Department, is pushing for tighter restrictions on the dissemination of technology and information about it to Soviet Bloc countries. One of its strongest advocates for tightening up is Lawrence Brady, Assistant Secretary of Commerce for Trade Administration.

What, in brief, is your argument for more restrictions?

ASSISTANT SECRETARY OF COMMERCE LAWRENCE BRADY: We think when you look back over what's happened over the last 10 years -- and we have done that in the first six to eight months of this Administration -- we see that what we exported, legally, commercially, and what was acquired illegally by the Soviets complement themselves to such an extent that what the Soviets got from the West was technology, equipment that has drastically helped their military-industrial complex. And what this Administration is saying now is that we've got -- now that we've taken a look at the system and how it worked, or how it failed, we've got to take a look and see how we can better control the technology. Not necessarily broaden the controls, because, frankly, based on the discussion that just took place, it's true there are some sophisticated chips in some of these toys. What we want to do is to address the design, manufacturing, production technology. In other words, preclude the Soviets, or at least delay the Soviets from acquiring the manufacturing, the turnkey plant that conveys technology in its real sense.

LEHRER: Can it be defined, carefully defined and understood, to use Dr. Sello's term?

SECRETARY BRADY: I think we can do it. I think we're making progress in doing it. We have had in the government in the last four or five years an exercise called the Military Critical Technologies Exercise, where we tried to take a look and to see what technology, technical data, know-how -- not necessarily equipment per se -- is the most critical to the military-industrial complex. And I think we're making headway.

We've got nine defense priority industries -- computers, microelectronics, chemicals, shipbuilding -- that are critical to a modern military machine in the Soviet Union.

LEHRER: But what about the question of some of the things -- as Robin asked a moment ago, that some of these things that are used in toys could be used in a military way as well. That's a real problem, as Dr. Sello said, for his industry. How you answer that problem?

SECRETARY BRADY: The things that are used in toys are the chips. And frankly, they're the items that you can walk into any computer store in this country and buy off the shelf for five-ten bucks. And what we're saying, as a matter of fact, is that we should devote the government's resources to the technology to make those chips rather than to the chips themselves. In other words, if the Soviets really want to acquire that chip, they're going to go into a store and buy it for \$5. They're not going to buy the video game for 150.

LEHRER: What about restrictions on scientific exchange, particularly at the research level, at universities and that sort

of thing, between U.S. scientists and Soviet Bloc scientists? Do you want restrictions on that as well?

SECRETARY BRADY: We want to take a very hard look at what has taken place. We have done that. We know that there has been a loss of technology, of know-how through those exchanges. We know that the Soviets acquire, both commercially and illegally, the technology, on the one hand. They Sovietize it, which means they try to apply it to the particular Soviet operation. The link sometimes is difficult to make. In other words, how do you Sovietize it? And sometimes they need help from individuals in the United States to do that, or at least they have to come to us for help. And that's where the academic and student exchanges come in.

And what we've got to prevent is the conveying of that knowledge that helps them reach a point in their research and development effort, or even their design, manufacturing and production effort, that would take them years to get there, and many dollars.

LEHRER: Can you do that without infringing on academic freedom and that sort of thing?

SECRETARY BRADY: Well, we think we can. We don't -- we have no intention of, obviously, trying to infringe upon academic freedom or the ability of university professors to teach the courses they want to teach. But when you have foreign students coming into this country, it is a right which we are giving them. And I think that right can be conditioned, to the extent that when they're here, they not be given the technology which will undermine our efforts and help, in essence, the Soviets' effort -- the Soviet efforts in the military area.

LEHRER: Thank you.

MACNEIL: Last February, the presidents of five prestigious American universities wrote to the government protesting about what they saw as attempts to restrict academic freedom in the name of national security. The letter was written by Donald Kennedy, President of Stanford, a distinguished biologist and former Commissioner of the Food and Drug Administration under President Carter. Dr. Kennedy is also with us in San Francisco.

First of all, what prompted your letter to the Secretaries of State, Defense and Commerce last year?

DONALD KENNEDY: Well, as a consequence of the evolution of the application of these export controls from things to ideas, we confronted a series of inquiries from not only Mr. Brady's department, but from some others, regarding foreign nationals in U.S. universities, requests to keep track of them,

requests to restrict attendance at scientific symposia and meetings, and things of that sort.

What concerns us is that in their application to fundamental research, which is what goes on in universities like Stanford, what is going to happen is that an attempt which in other ways may be entirely legitimate to preserve U.S. technological leadership becomes, in fact, a stifling influence on the conduct of an entire scientific enterprise, most of which is based in the universities.

I'm really concerned with academic freedom than I am with the health of a very important enterprise which deals not in process technologies, but in fundamental science.

MACNEIL: How does it stifle that?

KENNEDY: Well, I think that...

MACNEIL: I mean if your secure within your university, exchanging ideas and going on with your research, how does it stifle it to kind of limit how much of that is given out?

KENNEDY: It's not a question of limiting what's given out. It's a question of limiting what goes on inside. We've had actual requests from Commerce and from other departments to change the shape of what goes on internally, to restrict access by our own graduate students to research projects that take place within the university. So that's what we're talking about.

MACNEIL: Do you think it is appropriate for universities to attempt to restrict the activities of foreign students and their access to certain courses or classes or professors?

KENNEDY: I don't think you can conduct a research and training activity on that basis, Mr. MacNeil. I think it compromises the entire style of inquiry. It compromises some very basic principles of research training. And there are other ways of achieving the same goals. If the technology becomes so important militarily that it needs restriction, the government can classify it. And then universities can decide whether or not they wish to do it.

MACNEIL: How do you assess the government's degree of concern about this? I mean have they got it right? Are they right to be as worried as they are about it, do you think?

KENNEDY: In the things are, they may very well be right. In the research area, I think they're being overzealous. But we can sit down and talk about it with them, and indeed we have.

I think that the costs to the scientific enterprise, just to repeat, of intervening in the way they have from time to time proposed to intervene during the past year, I think those effects will be negative. And that's what prompted the letter to which you referred at the beginning.

MACNEIL: Do you believe that there are some areas of technology which should be, and in fact can be, kept secret?

KENNEDY: I think that those should meet the test of requiring national security classification. That's a test that we have at hand. It can be put in place to deal with these problems.

MACNEIL: And short of that, you shouldn't be asked to restrict access to these things, you mean.

KENNEDY: That's right. I think that the cost to the enterprise, the scientific enterprise, will be substantially greater than whatever restrictions you could actually accomplish in export.

MACNEIL: Well, thank you.

LEHRER: Secretary Brady, how do you respond to that, in terms of the cost?

SECRETARY BRADY: Well, I don't know precisely what he's talking about when he says cost. What we're talking about are a handful of students, basically, from the Soviet Union and some of the East European countries who are, for the most part, graduate students in the United States.

Let me tell you of a Soviet graduate student in the United States. He has the equivalent of a Ph.D. He's between 33-35 years old. And he's vastly unlike, he or she is vastly unlike the student that we send to the Soviet Union or to Eastern Europe, normally a poetry or history major.

LEHRER: You're suggesting that it's KGB people?

SECRETARY BRADY: Well, I'm suggesting not only that. I'm suggesting that they are here for a particular purpose. The Soviets do not spend their hard-earned currency needlessly. Whenever they buy, whenever they allow someone to travel in the West, it is for a very specific reason.

LEHRER: Well, why not just keep those people out of the country?

SECRETARY BRADY: Well, that's one of the -- that's one of the ways of dealing with this question. One of the problems

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with that is that it is difficult, with an open society, to close its borders. We may not grant a student a visa, but a third country may. And he may be able to come in the country illegally.

LEHRER: Dr. Kennedy, back to you on the question of cost. You heard what the Secretary says. We're talking about a handful of people that are clearly identified, etcetera. What's the problem in...

KENNEDY: I'm relieved that that's all Mr. Brady is worried about. As he himself says, he can deal with that perfectly comfortably through visa regulation. And, in fact, we don't need what they're proposing. Not a single one of the Commerce Department requests or inquiries of a university in the past year that is known to me and led to our letter involved a Soviet exchange student. Not one.

SECRETARY BRADY: No, but one of them involved a symposia or a conference on bubble memory, which...

LEHRER: On bubble memory?

SECRETARY BRADY: On bubble memory in the computer development area, which is an area that's of very real concern to the United States as far as the next generation of technology. One of the...

LEHRER: And you requested that Soviet people, Soviet Bloc people not be allowed to attend.

SECRETARY BRADY: I believe that was the request. It's some months ago and...

LEHRER: Is that the one that bothered you, Dr. Kennedy?

KENNEDY: That's one of the ones that was referred to incidentally in the letter. I don't think it's the one of main concern. I'm much more concerned about requests to follow the activities of and to restrict access of visiting scholars and graduate students from a variety of foreign nations; and, in some cases, to delay publication of results that come from clearly fundamental and unclassified research. Those are the sorts of problems that worry me a great deal more.

SECRETARY BRADY: Yeah, but let me tell you a couple of the problems we had. We found out that a graduate student from one of the East European countries was over here studying fuel-to-air explosives under a professor who was under contract to the Navy. When the student transferred from the United States, he went back to his East European homeland and began working in the precise area in which we had taught him.

So that our concerns are not without very solid foundation.

LEHRER: Harry Rositzke, what's your view of this, on how this kind of thing could and should be restricted?

ROSITKE: Well, I think probably the first mistake we make, though, is that this is strictly a matter for American control. If we look at the entire problem, we have to include Western Europe, and certainly German and Japanese industry. And one of the easiest ways to get materiel out, as you know, is through the transshipment business, which the KGB is in. Let any good West European firm with a KGB contact buy anything they want in this country on the export control list, get it over there -- and this has happened to silicon chips as well -- and they simply transship it from Rotterdam to Warsaw or from Vienna to Moscow.

So, to that extent, we're not limited in terms of our own shores.

Now, on the second point, the academic. I think that is, as an old academic, a terribly hard one to control, and I'm not sure it would have that much of an effect.

One thing the KGB is very good at -- and there have been several cases -- of recruiting American and West European students abroad, paying their entire college education, the B.A., getting them into the States, paying for their Ph.D. Most of them are in the hard sciences. And several I know of have gotten jobs in, shall we say, defense industries.

Well now, they can't do this by the hundreds. But we're still talking about an external control without being able to control the internal.

LEHRER: Mr. Secretary?

SECRETARY BRADY: The question that you raised about Western Europe is a good -- is a good point. However, I would draw again the distinction between equipment, which can be diverted, technology, which is more difficult to divert to a third party; it can be acquired illegally easily.

LEHRER: With that distinction drawn, we have to go.